OMFTS and JV 2010: A Proper Fit

A Monograph
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Second Term AY 99-00

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

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Title of Monograph: ***OMFTS and JV 2010: A Proper Fit***

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Accepted this 15th Day of May, 2000

ABSTRACT

OMFTS AND JV 2010: A PROPER FIT by Maj. T. S. Mundy, USMC, 48 pages.

Joint Vision 2010 was developed to focus the direction of the four armed services towards a unified vision of the future. It presented four operational concepts to act as the framework for all future joint operations. The operational concepts are dominant maneuver, precision engagement, full dimensional protection, and focused logistics. The intent of *Joint Vision 2010* is that all services will work towards developing their own capabilities that fit into the ideas presented through the four operational concepts. By so doing, *JV 2010* hopes to unify the direction of all elements of the U.S. military and develop capabilities and equipment that will give the U.S. full spectrum dominance in any future conflict.

Operational Maneuver From the Sea is a Marine Corps concept that envisions using the sea as a secure operating base from which to launch deep maneuver warfare style operations. It is supported by several concepts such as ship to objective maneuver, the MAGTF as an operational maneuver element, expeditionary fire support, and seabased logistics. *OMFTS* emerged shortly after *JV 2010*, but there has been some debate over whether it properly fits into the concepts presented in *JV 2010*.

The elements of *JV 2010* and *OMFTS* are explored as a means of determining how well the Marine Corps has developed a concept that is synchronized with the Joint Vision. To properly understand how each concept was developed, an examination of the expected threat in the year 2010 is done with regard to each document. Using all of that information as a basis for comparison, the two concepts and their supporting ideas are contrasted against each other to determine any shortfalls.

The research reveals that *OMFTS* and its concepts are complementary to *JV 2010* and its four operational concepts. There is some variation on the expected threat in the future which leads to slight differences in the manner each concept envisions dealing with an enemy, but for the most part *OMFTS* supports fully the four operational concepts of *JV 2010*. *OMFTS* appears to be a truly viable concept to revolutionize amphibious and expeditionary operations. The major shortfall in *OMFTS* is that it carves a niche for the Marine Corps for future amphibious operations, but fails to address how *OMFTS* concepts will be incorporated into the joint force should more services than the Marine Corps need to execute amphibious assaults.

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INTRODUCTION

The Marine Corps has laid a foundation for the future with several concept papers and vision statements. *From the Sea* and *Forward...from the Sea*, two white papers that explained the naval services' vision for the future, both projected a new world where naval forces would serve as premier, forward deployed forces to deal with the emerging threats in the littoral areas. These white papers initiated fundamental changes in naval vision. In particular, the greatest impact was on the United States Navy, shifting its focus away from the blue water (open ocean) conflict to littoral warfare and promoting cooperation between the two services that had been lacking for several decades.[1] While in the years following World War II the Navy tended to ignore any developments in amphibious warfare, and instead gave its budget and attention to the aircraft carrier battle group, the realities of a world without the Soviet threat have forced it to acknowledge the littorals and sign up to a new vision for naval warfare.

To plan towards this future vision, the Marine Corps developed concepts starting with the capstone document, *Operational Maneuver From The Sea (OMFTS)*. *OMFTS* is the Marine Corps' concept for how to change to meet the

challenges of the Twenty-first century. *OMFTS* is supported by many other concepts including *Ship To Objective Maneuver (STOM), The Marine Air Ground Task Force (MAGTF) in Sustained Operations Ashore, Expeditionary Fire Support,* and *Seabased Logistics.* These concepts are intended to reshape and provide a Marine Corps capable of successful actions in the future as part of a joint team.

Joint Vision 2010 (*JV 2010*) establishes the conceptual template for how America's armed forces will adapt to joint warfighting in the beginning of the Twenty-first century. *JV 2010* develops from its vision of the future four operational concepts: dominant maneuver, precision engagement, full dimensional protection, and focused logistics. These operational concepts are goals for the future to focus the development of new joint capabilities. The objective to be derived through the application of these four operational concepts is the capability to dominate any opponent across the range of military operations. Woven together, the concepts will define the U.S. military as a force capable of achieving full spectrum dominance.

The Marine Corps appears to have a clear vision and direction for its future as defined by *OMFTS* and the associated concepts under it. Yet, is *OMFTS* compatible

with *JV 2010*? Is *OMFTS* truly an operational concept in the manner it plans to use forces in the future? Will the concepts developed by the Marine Corps into its unique capabilities fit into the framework of the four operational concepts described in *JV 2010*? It is significant to examine the Marine Corps' concepts as they fit into the operational realm and determine if they are developed in such a way as to meet the vision of the joint force, or whether they need revision to arrive at that goal.

This monograph answers the research question, "does the Marine Corps concept of *Operational Maneuver From the Sea* align with the operational requirements of *Joint Vision 2010*?" The research begins with an examination of the threat environment in the year 2010 as envisioned by the Joint Vision. Books and articles are used to establish a theory for the future of conflict and how *JV 2010* addresses this. Then, the monograph investigates the operational concepts of *JV 2010*: dominant maneuver, precision engagement, full dimensional protection, and focused logistics. This section uses joint doctrine, joint concept papers, and articles written in professional journals to establish the precedence for *JV 2010*. Articles and books are also used to establish the concept of joint operations

and lay the foundation for how the Marine Corps should fit into a joint operation in the early Twenty-first century.

Second, the research examines the Marine Corps concept of *OMFTS* and its impact on that service's force planning and design for the future. The threat environment of the year 2010, as depicted by the Marine Corps, is reviewed as a means of understanding how *OMFTS* will address it. Marine Corps concept papers concerning the elements of *OMFTS* will be analyzed to bring out their salient points. There are numerous supporting concepts to *OMFTS*, so the monograph will focus on the four most significant, *Ship To Objective Maneuver, The Marine Air Ground Task Force in Sustained Operations Ashore, Expeditionary Fire Support,* and *Seabased Logistics*. Studies on the projected future employment of the Marine Corps are examined to validate the concepts under *OMFTS*, when compared against anticipated threats and conditions.

Third, the monograph compares the *OMFTS* concepts to the *JV 2010* operational concepts to show that the significant concepts supporting *OMFTS* align with the *JV 2010* concepts of dominant maneuver, precision engagement, full dimensional protection, and focused logistics. Contrasting the elements of *OMFTS* against the elements of

JV 2010 reveal areas where *OMFTS* concepts reach the desired goal for joint operations in the future.

The monograph concludes with recommendations on changes that might need to occur in *OMFTS* concepts to ensure they better align with *JV 2010* operational concepts. These concepts in *JV 2010* are important as they explain the direction for the future joint force. This direction is needed to ensure each of the four armed services proceed along a similar path to achieve a unified U.S. military approach to threats in the year 2010.

JOINT VISION 2010

Joint Vision 2010 was created to unify the direction of the four U.S. military services towards an uncertain future. In 1993, General John M. Shalikashvili became the new Chairman of the Joint Chiefs of Staff and saw that all the services were making headway, but lacked a truly joint combat development process. *JV 2010* is the attempt of Gen. Shalikashvili, his staff and colleagues to do something never tried before: to move the "...military machine in all its dimensions coherently into the future."[2]

The goal for *JV 2010* was to develop a concept for how the armed services envisioned emerging technologies and information superiority allowing different military operations in the future. The intent behind *JV 2010* was that it form the basis for a plan to assess and validate new ideas before incorporating them into joint doctrine and warfighting.[3] The vision is aimed at warfighting in the early Twenty-first century and places much emphasis on being able to become reality because of the improved command and control and intelligence gained through the information age.[4] *JV 2010* seeks to develop four operational concepts that build on current U.S. capabilities and strengths to arrive at a position where the key characteristic of operations is full spectrum dominance, or

the ability to dominate an opponent over the full range of military operations. The operational concepts that make full spectrum dominance possible are dominant maneuver, precision engagement, full dimensional protection, and focused logistics.[5] Yet some question whether *JV 2010* is accurately portraying U.S. military operations against the most likely of many uncertain future scenarios involving threats to U.S. interests. Full spectrum dominance and its supporting operational concepts may propose too narrow a restriction on the future use of military force given the varied nature of military operations.

THREAT TO U.S. IN THE NEAR FUTURE

JV 2010 proposes that U.S. forces will have to perform a myriad of missions just as they are currently doing, but must also stay focused on the ability to fight and win the nation's wars. This has caused speculation about what threat forces will look like to the U.S. military of 2010. The accepted position seems to be that the U.S. will not face a peer superpower competitor per se, but threats will still exist from conventional forces. Therefore, American military forces must always be prepared for the high end of the spectrum of conflict, as well as being ready for the lower end.

More likely than high end conflict in 2010 is the threat to U.S. interests from non-state actors. These groups will have access to technology that may rival U.S. capabilities. The types of easily acquired technology available to non-state actors will be items such as secure communications, GPS satellite positioning, computers, and weapons of mass destruction. All enemies of the U.S. will attempt to challenge its forces asymmetrically, attacking where they believe U.S. forces are vulnerable.[6]

The enemy of the future will seek to avoid U.S. strength. It may focus on the American peoples' will, trying to cause casualties regardless of its own tactical loss in an attempt to capitalize on this perceived weakness. Or perhaps the enemy may try to induce U.S. forces to kill large numbers of its own people as another method of destroying U.S. public will. While the authors of *JV 2010* couched the discussion of full dimensional protection in terms of the U.S. military, the enemy may consider "...physical defeat of U.S. forces as a secondary objective or non-objective."[7]

The lesson is the U.S. must be prepared to fight and defeat street-fighters who do not play by rules America deems appropriate. An enemy who does not share American-style values and finds no dilemma in using human shields

around potential targets may counter concepts such as precision strike.[8] The authors of *JV 2010* must keep in mind viewing its concepts as the enemy would see them. One unintended consequence of U.S. superiority in precision strike weapons was a statement by a Russian official to the effect that since they could not counter U.S. precision capabilities which would degrade their forces, they would rely on nuclear weapons to defeat U.S. forces. They would consider America's use of precision weapons as the first step towards a nuclear exchange.[9]

Indeed, it is clear that the U.S. must prepare its forces in the manner *JV 2010* proposes to take advantage of current and future technological superiority. Yet there is a balance between technological expertise and warfighting skills that must also be maintained. "The training which the Armed Forces will most need in the future is not in technical skills per se, but in the warrior spirit, unit cohesion, and other intangibles unique to warfighting."[10]

U.S. MILITARY ROLE IN THE NEAR FUTURE

JV 2010 begins with an explanation of the role of U.S. armed forces in the near future as first, to fight and win the nation's wars, but also deter, contain conflict, or promote U.S. interests and values.[11] The main way of

accomplishing these tasks will be through power projection, enabled by overseas presence, presumably land-based as well as forward-deployed naval forces.

JV 2010 relies heavily on the technological aspects of the future that will enable military operations to differ from their current state. Mass, still a viable principle in the future, will be achieved through other means. In the past, the U.S. had to physically mass combat forces and build up power which meant sequential operations with a long lead time. *JV 2010* postulates that by 2010, through technological advances, mass will be achieved in a different manner.[12]

Technology recurs as a major theme of *JV 2010*. The document proposes a new conceptual framework for operations because of the U.S. ability to exploit technology. It identifies the need for the U.S. to develop in a systematic manner the full range of required enhancements in technology to make *JV 2010* a reality.[13] The expectation is that the services will develop technologies to support their integration into the vision. The basis for this new conceptual framework is "improved command, control, and intelligence which can be assured by information superiority."[14]

However, many advocates of *JV 2010* caution that U.S. forces cannot become overly reliant on technology as a solution for all problems. Secretary of Defense William Cohen stated, "the technology, weapon, or doctrine that looks like the sure-fire path to the future today may be overtaken and obsolete in five, 10 or 15 [sic] years as the revolution unfolds."[15] He goes on to argue for a modernization plan that is not too rigid as to lock the U.S. into one set course. Rather, technological change should be able to follow new paths as they are available.

Technology is certainly an enabler for future U.S. forces, but "we must never fall into the trap of thinking that simply by fielding new and better systems we will maintain our lead. History has taught us over and over again that technology alone is not the answer." Instead, having quality personnel, high caliber leaders, and solid operational concepts and doctrine will be decisive in employing the technology on the battlefield.[16]

The claim of *JV 2010* is that through enhanced command and control and improved intelligence, available through technology, the traditional functions of maneuver, strike, protection and logistics will be transformed. The transformations are profound enough to make new operational

concepts: dominant maneuver, precision engagement, focused logistics, and full dimensional protection.[17]

DOMINANT MANEUVER

Dominant maneuver is defined by *JV 2010* as the "multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks."[18] It gives U.S. forces a decisive advantage because they are able to control the breadth, depth, and height of the battlespace. Dominant maneuver requires forces that are adept at synchronized and sustained operations, operating from dispersed locations. Also, those forces should be able to bring overwhelming force to bear asymmetrically (for example, air and sea forces against a land enemy, or ground and sea forces against an air enemy). They should also have the ability to outmaneuver and outpace the enemy.[19] Protection of the force is recognized as essential to mission success and *JV 2010* explains it is an element of dominant maneuver. The advantage of self-protection is available because of forces able to execute operations with reduced build-up time and a smaller, more dispersed

footprint.[20] These features of the future maneuver force make it harder for the enemy to find and attack it.

PRECISION ENGAGEMENT

"Precision engagement will consist of a system of systems that enables our forces to locate the objective or target, provide responsive command and control, generate the desired effect, assess our level of success, and retain the flexibility to reengage with precision when required."[21] As its definition of precision engagement suggests, *JV 2010* predicts that U.S. forces will benefit in the future from their current advantages for precision and engagement. It also suggests information operations will give U.S. forces better target acquisition and an ability to deliver fire where commanders desire without associated collateral damage.[22]

FULL-DIMENSIONAL PROTECTION

Full dimensional protection is defined in *JV 2010* as a proactive concept, using both offensive and defensive actions. Again, it is a concept made possible through information superiority. U.S. forces' improved awareness and assessment, plus positive identification of all forces in the battlespace, enables improved protection. The

concept recognizes current measures, such as dispersion, but claims that "the primary prerequisite for full-dimensional protection will be control of the battlespace to ensure our forces can maintain freedom of action during deployment, maneuver, and engagement, while providing multi-layered defenses for our forces and facilities at all levels."[23]

FOCUSED LOGISTICS

JV 2010 defines focused logistics as "the fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even when enroute, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical level of operations."[24] The idea *JV 2010* strives for with focused logistics is to enable a smaller, more capable force; a force that requires less continuous support and a smaller footprint. Ultimately, this would decrease the vulnerability of logistics lines of communication and link into the concept of full dimensional protection.[25]

PROGRESS TOWARDS FULFILLMENT OF JV 2010

There is evidence that work is already underway that will lead to the implementation of *JV 2010*. That evidence is seen in the work of agencies like the Joint Requirements Oversight Council (JROC), Joint Warfighting Center, and the Joint Warfighting Capability Assessment (JWCA). The JROC, chaired by the Vice Chairman of the Joint Chiefs of Staff and made up of the services' vice chiefs, makes decisions and recommendations for modernizing U.S. forces.[26] Their decisions are directly linked into *JV 2010* ideas. The real efforts towards making *JV 2010* a reality can happen if the services can look beyond only what is best for themselves and work in a joint spirit, deriving their excellence from doing what they are given to do.[27] The U.S. Marine Corps stands in the joint community as the lead agent for the development of amphibious doctrine. An examination of Marine concepts for the future will be beneficial to determine if the Corps is contributing in its area of expertise towards the realization of *JV 2010*.

OPERATIONAL MANEUVER FROM THE SEA

Operational Maneuver From the Sea arose as a new operational concept to help the Marine Corps address the changing nature of the operational environment. It deals with the many challenges the Marine Corps will have to face in the near future, as well as seeking ways to take advantage of the opportunities created by the emergence of new technologies.

As a new operational concept, *OMFTS* had to be defined and explained in a manner that would make it understandable as different from other forms of operational maneuver. *OMFTS* has been defined as "...the maneuver of naval forces at the operational level, a bold bid for victory that aims at exploiting a significant enemy weakness in order to deal a decisive blow."[28] Or more simply, "the maneuver of naval forces at the operational level of war in order to deal a decisive blow against the enemy."[29] *OMFTS* creatively combines the elements of combat power with maneuver warfare and naval warfare.[30] To be effective, operational maneuver should be aimed at an enemy center of gravity. It can be distinguished from other operational maneuver because of the use of the sea as an avenue to friendly forces and a barrier to enemy forces.[31]

OMFTS provides even greater flexibility to the naval forces of the future. While focused on warfighting, *OMFTS* concepts are applicable across the spectrum of operations. Naval forces of the future will assist in humanitarian operations (for example, disaster relief) and small scale contingencies (for example, non-combatant evacuation operations, or NEOs). Sea basing gives flexibility without having to deplete resources to establish shore facilities. STOM enables movement of forces and supplies to where the relief is needed regardless of ports or airfields. Timely, precision fires from sea-based platforms offer protection to the force while allowing Marines to go ashore lightly armed, presenting a less threatening appearance.[32]

THREAT AS VIEWED BY THE MARINE CORPS

OMFTS developed as an answer to the changing nature of the operational environment. It was required because of the future "chaos in the littorals"; an area where the clash of the forces of national aspiration, religious intolerance, and ethnic hatred all coalesce and present a danger to U.S. interests and forces. *OMFTS* also seeks to take advantage of new opportunities presented by enhancements in information management, battlefield mobility, and the lethality of conventional weapons.[33]

These changes in the operational environment do not change the nature of war, but who, why and how the U.S. will fight in the future. That in turn leads to changes in how the Marine Corps will educate its leaders, organize and equip its units, and select and train its Marines.[34] It should be noted that while the Marine Corps recognizes differences in the way it will have to equip units, it maintains a great degree of focus on the human elements of the future force: educating leaders and training Marines. A necessity for dealing with the uncertainties of future conflict will still be quality personnel, well trained and well led.

The threat in the near future will be varied in its nature, though dangerous regardless of its character. In fact, it may represent a new, long struggle between U.S. forces and "...the demons of crime, population pressure, environmental degradation, disease, and culture conflict."[35] Many threats will come in the form of ethnic groups, street gangs, clans, and other non-state actors. The world seems to be entering an era where there is an abundance of young men willing to fight regardless of the reasons. Loyalty is shifting away from nation states in many instances, though some will remain in place and will maintain lethal conventional forces. Adversaries of U.S. forces will have

access to various high technology weapons, even possibly weapons of mass destruction.[36]

The 31st Commandant of the Marine Corps, General Charles Krulak, believes that future adversaries will seek U.S. vulnerabilities, namely ports, airfields, fuel systems, and information systems. Additionally, it is unlikely that the threat of the future will remain organized or equipped to mirror U.S. forces. The U.S. military is currently optimized to defeat, for example, armor formations and fixed command and control headquarters sites, so a thinking enemy will avoid presenting those targets. Nevertheless, these threats will be very dangerous, in fact potentially more dangerous because it will be harder for U.S. forces to bring combat power to bear on these adversaries.[37] An area of concern will continue to be the proximity of innocent civilians in areas of strife. Their proximity makes the requirement for precision weapons even more necessary, especially with the willingness of some enemies to use civilians as human shields. Discriminating weapons will help deal with this problem and have the added benefit of reducing the amount of ordnance expended to affect a target. This in turn leads to a lessened logistics support load and smaller logistics footprint.[38]

Given this daunting future assessment, one might be inclined to propose that U.S. forces remain out of these areas while America assumes a more isolationist approach. This idea is unrealistic. U.S. interests around the world and commitments to allied nations will draw American armed forces into such situations. U.S. trade continues to grow with nations around the world, particularly in Asia and the Pacific Rim. As the world's economies continue to become more interdependent, instability in any region will become less and less tolerable. U.S. military force will often be required to deal with instability that threatens national interests or those of its allies.[39]

SHIP TO OBJECTIVE MANEUVER

Ship to Objective Maneuver is a new tactical concept for conducting amphibious forcible entry. Emerging technologies like the Advanced Amphibious Assault Vehicle (AAAV), MV-22 Tilt-rotor aircraft, global positioning systems (GPS), and advanced command and control systems enable radically different amphibious operations. Under STOM, there is no need to secure a large beachhead, thereby freeing the amphibious force commander to focus on the enemy and penetrate the shoreline at points of his own choosing. Through this concept, the commander can make

decisions as the situation develops and maintain momentum, exploiting enemy weakness as it appears.[40]

True STOM does not follow the traditional method of seizing a beach and then moving to the objective, but instead seeks to thrust combat units ashore in their fighting formations aimed at a decisive point with sufficient combat power to ensure mission accomplishment. "Regardless of the presence of adjacent land bases, amphibious forces provide the joint force commander a credible and sustainable forcible entry capability."[41] STOM transforms traditional amphibious operations into the maneuver of combined arms amphibious task forces. A general unloading of the landing force will not take place. Rather, several self-contained combined arms teams will constitute the surface assault force. They will conduct the operation and it will not terminate with the transfer of command ashore (as in the past) but instead when the mission is accomplished. At that time, the MAGTF may transition to subsequent operations ashore or re-embark for follow on force projection operations.[42]

Another crucial distinction of STOM is that while it is dedicated to rapidly projecting combined arms combat units ashore, its emphasis for command and control, logistics, and fire support is that they remain sea-based.

Combat forces ashore will be leaner, lighter, more agile and more effective. Technological advances will allow effective command and control, resupply, and fire support to be delivered from a sea base, a base the enemy will have difficulty attacking or disrupting.[43]

THE MARINE AIR GROUND TASK FORCE (MAGTF) IN SUSTAINED OPERATIONS ASHORE

In the future, as in the past, the MAGTF will participate in sustained operations ashore. The difference will be that rather than participating in methodical ground operations, the MAGTF will remain a general purpose force. This force will have the ability to execute precise, focused combat actions to achieve decisive results, not merely forcible entry.[44] The MAGTF of the future will operate as a sea-based operational maneuver element. This will provide the warfighting Commanders in Chief (CINCs) or Joint Force Commanders (JFCs) with an agile, versatile, responsive force capable of attacking enemy critical vulnerabilities and reducing his center of gravity in a joint campaign. The MAGTF can normally be employed as an independent force, and with its self-contained nature, provides the JFC a capability to use in a decisive, enabling, or exploitation role.[45]

The MAGTF derives its capabilities and a large degree of its force projection ability from being a sea-based force. The MAGTF will operate in accordance with *OMFTS* and STOM principles. When employed as an operational maneuver element, the MAGTF can use its mobility through its sea-based character to conduct operations at the times and places of its choosing to support the CINC's or JFC's intent. These actions can achieve decisive effects for the joint force or set the stage for actions by other joint elements.[46]

This concept recognizes that elements of the MAGTF may conduct operations ashore for a sustained period. The ground combat element of the MAGTF may serve in a land campaign along with other joint land forces. The aviation combat element may also need to be shore based if their assets exceed the space of the sea-base as they enter the theater. As much as possible, however, the MAGTF will maintain its focus on being a sea-based force so as to present the enemy commander with a dilemma. Sea-basing also enhances the force protection of the MAGTF elements.[47]

EXPEDITIONARY FIRE SUPPORT

To support *OMFTS*, flexible, robust, responsive fire support is essential. Amphibious forces launching from a

sea base over the horizon and pushing towards operational objectives far inland cannot afford the delay to set up and secure firing positions ashore for assets with limited mobility, nor can the current range limitations and vulnerability of naval surface fire support platforms enable the decisiveness of the operational maneuver element.

In *OMFTS* and STOM, the amphibious force must be able to use fires to shape the enemy situation and create conditions favorable for the landing of the force. This will require integration of all elements of the naval expeditionary force and will rely heavily on air delivered fires. Yet the lack of a true all weather aircraft capability demands that advances be made in naval surface delivered fires to fill gaps in support. Shore based fire support systems are also being developed to enhance the mobility of these systems, a requirement for *OMFTS* or sustained operations ashore. The wide latitude of missions to which amphibious forces are capable of responding also creates the requirement for precision fires able to engage targets in close proximity to noncombatants or in culturally or politically sensitive areas.[48]

The United States Navy and Marine Corps answered this challenge by developing the concept of the expeditionary

fire support system. The system is intended to streamline all aspects of fire support to make it more responsive to the maneuver commander. A single, integrated command and control system for fire support capable of passing target information from many sensors to any available delivery platform will enhance this area.

Naval surface fire support will provide long range, accurate fire from over the horizon, thereby increasing force protection while still delivering deadly munitions.[49] Developments in the Navy of vertically launched missiles and the extended range guided munitions (ERGM) for naval guns promise both accuracy and range far in excess of current capabilities. While extended range is important, accuracy and lethality is equally so. Technology exists that supports *OMFTS* in these areas with anti-bunker or anti-armor warheads and other smart munitions designed to enable precision strikes.[50] Aviation developments support *OMFTS* imperatives for close support of ground maneuver forces as well as capabilities to shape the battlefield for the commander. New platforms such as the F/A-18E/F Super Hornet and Joint Strike Fighter bring added ability for precision strikes from secure sea bases. On land, the lightweight M198 155mm howitzer will give a shore-based system with greater mobility to support the MAGTF pushing

inland as an operational maneuver element. The Marine Corps is also investigating the High Mobility Artillery Rocket System (HIMARS) as an added long range but mobile system to support the deep battle of the amphibious force.[51] Mobile shore based fire support systems are vital because of the effects weather and hydrography may have on aviation and surface vessel fire support delivery methods. Shore based fire support meets the needs of an all weather, responsive capability and supports the MAGTF in sustained operations ashore.[52]

SEABASED LOGISTICS

Seabased logistics is the concept that allows *OMFTS* and STOM to become reality. The concept is built around several tenets. The first tenet is the **primacy of the sea base**. The sea base concept must be developed so that it becomes a reality and not merely an unattainable vision that proves impractical. The strengths of having a sea base are many. The sea base provides a capability that is tailorable to fit the mission and can exist over the horizon. It can also provide a distribution and work area, supply credible long term sustainment, and reduce or eliminate a footprint ashore. These strengths of the sea base concept are essential to amphibious operations of the

future. The second tenet is **reduced logistics demand**. This is a necessity to enable the sea base to function without being overwhelmed. Improvements in operating efficiencies, reliability of equipment, and precision engagements will all contribute to reduced usage and enable less logistics demand.[53]

The third tenet of sea based logistics is **in stride sustainment**. Instead of masses of supply being pushed forward as in the past, units will communicate consumption data that will pull tailored support directly to them. Items will arrive as they are used up rather than having needless stockpiles that must be moved on the battlefield as the force moves. Fourth, sea based logistics must provide the capability of **adaptive response** and be useful in **joint operations**. Sea based logistics will be able to support a broad range of operations, from humanitarian assistance to major conflict. It will also be able to be integrated with theater logistics. In this regard, it will also be available to respond to the needs of the joint force. Finally, the tenet of **force closure and reconstitution at sea** is essential. This will allow the at sea arrival, assembly and integration of operational forces for projection of force toward an objective. With the ability to conduct maintenance, medical services, and

salvage at sea, sea based logistics presents a real capability to reconstitute forces in a safe haven.[54]

Ship to objective logistics reduces or eliminates the usual operational pause that occurs at the beach as forces and supplies are built up. It also minimizes force protection concerns because of sea-basing. The concept provides added flexibility to the MAGTF commander as he can shift lines of communication as the situation progresses.[55] This added capability can be available in the early Twenty-first century.

Technological improvements will help make the concept of sea based logistics a reality. Emerging capabilities such as total asset visibility will aid in tracking and speeding the delivery of supplies. Information technology and faster shipment methods will enhance material distribution. Creative innovations such as predictive maintenance technology—where embedded sensors monitor wear and forecast part replacement—will also improve availability of supplies and reduce requirements.[56]

OMFTS and its supporting concepts have been developed towards a future where amphibious forces can still be decisively employed. *OMFTS* provides CINCs and JFCs a secure, flexible and responsive sea based force. The concepts that support *OMFTS* enable making it a viable

capability. The Marine Corps promises a vital function in the joint arena through *OMFTS*, bringing a concept that measures up against the baseline ideas presented in *JV 2010*. *OMFTS* and its supporting concepts align with *JV 2010* operational concepts and show the Marine Corps is leading the way towards compliance with the vision while still taking a critical look at improvements to its own institution and service to the nation.

COMPARISON OF OMFTS CONCEPTS AND JV 2010 OPERATIONAL CONCEPTS

JV 2010 and *OMFTS* are both concepts built around an understanding of the future threat, yet each sees the future in a slightly different manner. *JV 2010* plans to meet future challenges through dominant maneuver, precision engagement, full dimensional protection, and focused logistics all enabled by information superiority. *OMFTS* builds towards these same future challenges by using concepts that still enable the decisive employment of amphibious forces. Through ship to objective maneuver, sea based logistics, advanced expeditionary fire support, and using the MAGTF as an operational maneuver element in sustained operations ashore, the Marine Corps seeks to achieve its part in the *JV 2010* concepts.

Critical to constructing concepts to meet future challenges is a thorough and accurate understanding of the challenges to be faced. Both *JV 2010* and *OMFTS* take time to address the threats of the future before introducing their supporting concepts. Yet each arrives at conclusions about the future that are slightly different. Which of the two documents best characterizes the opponents U.S. forces will face?

COMPARISON OF THREAT EXPECTATIONS

JV 2010 appears to have a heavy focus on a conventional threat to U.S. forces. Understandably, the U.S. military must always be prepared to defeat a competent foe in warfare on the high end of the spectrum, but *JV 2010* admits that the nation will not face a peer superpower competitor for the near future. Yet the *JV 2010* concepts seem to be aiming at just that sort of threat. Even the discussion of non-state actors (presumably not regular military forces) in *JV 2010* lists them as possessing high end technologies that can challenge U.S. forces. This seems to drive *JV 2010*'s outlook towards fighting war in the future just as the U.S. had done in Desert Storm, except with better technology. It is interesting to note that the associated illustrations of *JV 2010* supporting operational concepts all show the enemy as a mechanized and armor threat.

The *JV 2010* authors seem to be focused on a high tech, near peer competitor. *JV 2010* fails to account fully for the thinking enemy who may not have all the tools of a superpower, but can still cause friction for U.S. forces. "*JV 2010* smacks of a sterile operating environment without uncertainty, risk, ambiguity, or a thinking enemy."[57] The authors write about the enemy of 2010 attacking U.S. forces

asymmetrically, but the enemy they describe also owns the advanced technology devices U.S. forces will presumably have. The authors of *JV 2010* depict an enemy that will rival U.S. forces and will search for vulnerabilities. Does this discount the enemy that appears simple, but can think, use innovation, and still discover U.S. weaknesses?

The writers seem to have ignored historical examples such as the Somalis, who were not "high tech" in their approach, yet found U.S. vulnerabilities to exploit. Somali clan leaders observed that U.S. forces were hard to attack because they flew in fast, executed missions, and extracted quickly. The clan leaders determined that making U.S. troops have to stay on the ground and fight was a weakness they could exploit. The Somali fighters modified the warheads in their rocket propelled grenades (RPGs) to enable them to air burst and achieve crippling hits on U.S. helicopters flying overhead. They also developed new tactics of creating hidden positions in streets to wait for helicopters to pass overhead so they could avoid the U.S. fire superiority before attacking. Their simple (low-tech), innovative approach proved deadly effective to U.S. troops.[58]

OMFTS by contrast appears to draw a more relevant bead on the threat to U.S. forces in the year 2010. It

recognizes the nature of threats in the future as being chaotic and unpredictable. While not ignoring the need to defeat enemies in high end warfare, *OMFTS* tries to place its emphasis on enemies that will challenge the U.S. military because they do not fit the current mold. Enemy forces will not build their capabilities around armor and mechanized vehicles that they know U.S. capabilities are optimized to defeat. *OMFTS* recognizes that future threats will make themselves harder to engage by refusing to organize in a manner U.S. forces will be able to strike. This view seems consistent with some leading futurists such as Alvin and Heidi Toffler. The Tofflers argue that future wars will not occur superpower to superpower, but will be "niche" wars.[59]

The authors of *OMFTS* recognize that the future trend will drive conflict to nearly always be in the proximity of civilians. Adversaries will try to negate U.S. firepower by locating near civilians, using them as barriers or shields. *OMFTS* concludes that this creates an even greater need for precision weapons to defeat future threats, but even this assessment seems to fall short. As the Tofflers envision "niche warriors" to meet specific threats, so too must U.S. military planners recognize the need for precision forces. Forces that can be thrust into an enemy

environment, destroy a threat not arrayed as a conventional force, all while avoiding damage to surrounding civilians and structures, is what is actually required.

DOMINANT MANEUVER VERSUS STOM AND THE MAGTF IN SUSTAINED OPERATIONS ASHORE

The operational concept of dominant maneuver addresses using forces that are adept at synchronized and sustained operations and can operate from dispersed locations. It also envisions U.S. forces of the future capable of operating at a tempo that overwhelms the enemy by maneuver and pace. Dominant maneuver explains that protection of the force is an element of the concept and is essential to success. It seems to recognize accurately that maneuver will continue to be a dominant characteristic of warfare in the future, regardless of the nature of the threat.

OMFTS authors developed STOM and the MAGTF in sustained operations ashore with a direct tie to maneuver warfare, the overarching concept for how Marine Corps forces operate. Maneuver warfare "...is a warfighting doctrine based on rapid, flexible, and opportunistic maneuver."[60] This is not limited to a purely spatial form of maneuver, but also considers maneuver in other dimensions.

> The essence of maneuver is taking action to generate and exploit some kind of advantage over the enemy as a means of accomplishing our objectives as effectively as possible. That advantage may be psychological, technological, or temporal as well as spatial.[61]

This definition coupled with STOM and the MAGTF in sustained operations ashore concepts fit neatly into dominant maneuver with its emphasis on operations at a tempo the enemy cannot cope with, and attacking from dispersed and unanticipated directions. There have been several Marine Corps Warfighting Lab experiments which gave validity to the operational maneuver element concept. One, *Deep Strike*, showed that a Light Armored Vehicle (LAV) battalion organized with a composite aviation task force can be effective in deep operational maneuver to strike at enemy vulnerabilities.[62] This is exactly the type of dominant maneuver the framers of *JV 2010* had in mind.

With STOM, the Marine Corps commander is not tied to securing a beachhead, so he is able to maneuver and attack the enemy at various points on the shoreline. He maintains momentum by changing operations as the situation develops. Moving straight to the objective, forces using the STOM concept are harder for the enemy to find, do not have a base on land to be attacked, and can mass effects from many different locations. By so doing, they keep the enemy

commander off balance and enhance their own protection, both key elements of dominant maneuver. In fact, the Marine Corps recognizes using tempo as a weapon. Speed generated over time is tempo: an ability to operate quickly. By operating at a higher tempo, the friendly force is always making the enemy react and can exploit opportunities. This also adds security to the force operating at a higher tempo and allows it to concentrate superior combat power at the decisive time and place.[63]

Using the MAGTF in the sustained operations ashore concept, Marine forces can bring overwhelming force to bear asymmetrically as *JV 2010* desires. Maneuvering and attacking from the sea, thrusting deep into the enemy's critical areas, the MAGTF achieves dominant maneuver. Another of the characteristics of dominant maneuver is that the force should control the breadth, depth, and height of the battlespace. The MAGTF, by its nature of being an air and ground task force, can do this. Both this concept and STOM fit precisely the concept of dominant maneuver.

PRECISION ENGAGEMENT VERSUS EXPEDITIONARY FIRE SUPPORT

The *JV 2010* concept of precision engagement seeks to establish a system of systems that will share target information, command and control assets to engage the

target to achieve a desired effect, and then be able to assess and re-strike the target if necessary. A capability for surgical precision in the weapon systems that will avoid civilian and collateral damage is also expected. *JV 2010* seeks to achieve these precision strikes while still protecting the platforms that will deliver them.

The expeditionary fire support concept is a valid segue from precision engagement. The expeditionary fire support system is designed to share target information and operate in the manner described for an engagement system in *JV 2010*. The expeditionary fire support system also relies on a single, integrated command and control system that will enable rapid and accurate engagement of targets. The security of launching strikes from a sea base adds the element of protection, while still enabling effectiveness through new technologies delivered from sea and air based platforms. Using the maneuverability afforded by the sea, precision strikes will engage the enemy from multiple directions while still achieving massed effects.

FOCUSED LOGISTICS VERSUS SEA BASED LOGISTICS

The emphasis in *JV 2010* with focused logistics is towards a smaller, more capable force that can operate with a reduced logistics footprint. Less demand for logistics,

and the ability to direct it quickly to the right location or unit, eliminates the vulnerability of long lines of communication and large bases full of supplies that make lucrative targets for future foes.

Seabased logistics also strives towards eliminating the build-up of supplies at a vulnerable shore base. One of its tenets, reduced logistics demand, is a direct match with the *JV 2010* ideal. Using the sea as a secure base, the concept of seabased logistics offers protection while directing support to forces moving rapidly towards their objectives. With lines of communication remaining at sea and out of reach of the enemy, seabased logistics meets the goal set out under focused logistics.

FULL DIMENSIONAL PROTECTION VERSUS SEA BASING FOR PROTECTION

Full dimensional protection is described as a proactive concept, relying on both offensive and defensive actions. Through offensive means, U.S. forces will seek to take away enemy capabilities that can affect the friendly force. Defensively, the concept will rely on greater dispersion and security through rapid maneuver to ensure protection. Also important is the full control of the battlespace so as to preempt enemy activities.

OMFTS achieves a high degree of protection through its associated concepts of operational maneuver and sea basing. Operational maneuver on the sea presents the enemy with a dilemma and disrupts his efforts at striking the task force. Operational maneuver forces aimed at the enemy's critical vulnerabilities and centers of gravity will also quickly eliminate his options, thereby adding to the protection of the remainder of the force. Clearly, one of the greatest advantages of sea basing is that it makes the friendly force harder to attack. The enemy will be hard pressed to find a means for striking at a sea base, and the fact that it may also be mobile creates added problems for him and further enhances the protection of the sea based force.

CONCLUSIONS AND RECOMMENDATIONS

The comparison of *JV 2010* and *OMFTS* identifies that the two concepts for future warfighting are compatible. *OMFTS* with its supporting concepts directly supports *JV 2010* ideas for the joint forces of the near future. The one area where ambiguity seems to exist is in predicting the threat to U.S. forces in the year 2010. Yet, the two documents fit well together and, with some further refinements, will direct the Marine Corps and other services into the early Twenty-first century.

CONCLUSIONS

Understandably, predicting what future enemies will look and act like is difficult. *JV 2010* postulates one enemy that looks remarkably like threats of the late Twentieth century, something with which members of the U.S. military are comfortable. *OMFTS* seems to take into account a more broad spectrum of possible threats, but even it still focuses on an enemy that is a force with centers of gravity that are able to be struck by Marine forces. Both threat pictures need to be constantly revised to ensure that *JV 2010* and *OMFTS* remain relevant against enemies that do not conform to the mechanized, large field force or

enemies that may behave in such a manner as to not portray centers of gravity. *JV 2010* and *OMFTS* can still have applicability against these new threats, but possibly not as easy as currently envisioned, especially if the enemy is stereotyped into a model from the last war the U.S. fought.

Dominant maneuver is complemented by the *OMFTS* supporting concepts of STOM and the MAGTF in sustained operations ashore. The *OMFTS* concepts rely on Marine Corps maneuver warfare doctrine and seek to accomplish the same tasks identified in dominant maneuver. Marine amphibious forces, operating from dispersed locations and able to attack via many different routes (because of the maneuverability of being sea-borne), will create dominance through their maneuver.

Precision engagement finds a matching concept in expeditionary fire support. Both concepts recognize that the nature of future war, with non-combatants in close proximity to targets of military value, demands the ability to be precise in engagement whether delivered by land or sea based platforms. In each concept, the desire for a single command and control architecture that allows sharing of target information among strike platforms is also critical to speeding and improving the delivery of fires. The precision engagement concept stresses protection of the

delivery platforms, something the expeditionary fire support concept accomplishes through sea basing.

JV 2010's focused logistics lays out principles that *OMFTS*'s seabased logistics concept meets. Both concepts strive for a force that puts less stress on the logistical support system. Also, each seeks to anticipate needs within the maneuver force and send the required support directly to the user, thereby speeding logistics and eliminating the need for stockpiles or beach support areas. Seabased logistics parallels the ideas presented in focused logistics while having the added benefit of the protection of being at sea and out of enemy reach.

Full dimensional protection does not find a similar concept in those supporting *OMFTS*. However, the concept of sea basing adds a tremendous protective capability that meets the ideals set forth in full dimensional protection. *OMFTS* also fully realizes the need to use active and offensive measures to ensure protection of the force. While not directly stating a concept that deals with protection, sea basing, precision fires, and deep operational maneuver all combine to achieve a measure of protection for the Marine amphibious force in the spirit of full dimensional protection.

RECOMMENDATIONS

JV 2010 and *OMFTS* derive concepts planned towards a threat picture anticipated near the year 2010. There is some inconsistency in the vision of that threat, yet there needs to be congruence among the expectations of all services and the overarching joint threat picture. There are always apt to be disagreements, but *JV 2010* seems to anticipate an enemy modeled after large mechanized field forces. While it speaks of asymmetric threats, it fails to fully incorporate a thinking enemy, operating asymmetrically to degrade or defeat U.S. future capabilities. A better assessment of the threat in 2010 and its likely reactions to U.S. forces is needed from the joint force perspective.

OMFTS seems to understand the asymmetric threat more clearly, but similar to *JV 2010*, does not fully address how an enemy in the year 2010 will react to or try to defeat *OMFTS* concepts. A realistic examination of how a thinking, adaptive enemy will try to counter Marine amphibious forces using *OMFTS* concepts needs to be done.

Another question remains unresolved by the *OMFTS* concepts. *OMFTS* offers a JFC or CINC options for employing Marine forces in the future, and in this manner is an integral part of Twenty-first century joint warfighting.

Yet, the Marine Corps is also responsible for amphibious doctrine, ensuring other services (namely, the U.S. Army) in the joint force can execute amphibious operations. *OMFTS* relies heavily on specialized technology like the AAAV and MV-22 that may not be available in large numbers to Army forces. A better examination needs to be made to determine how amphibious doctrine will apply in 2010 across the joint force.

ENDNOTES

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[1] Mason, Douglas, Capt. USMC, and Phillips, Jason F., Capt. USMC. "OMFTS: A Perspective." *Marine Corps Gazette*, (August 1997) 56. The authors touch briefly on the nature of relations between the two services through the Cold War. While each a part of the same department, the Navy focused almost solely on deep water operations against the Soviet fleet. Advances in amphibious shipping and doctrine received little attention from Navy leadership and even less budget consideration. With changes in the world following the collapse of the Soviet Union, the Navy turned its attention toward the littorals and took a renewed interest in Marine amphibious and expeditionary operations.

[2] Cushman, John H., LTG, U.S. Army (Ret). "Joint Vision 2010: Can It Happen?" *Proceedings*, Vol. 123, No. 1 (January 1997) 40.

[3] Clauer, John A., Col. USMC. "In Defense of the 'Joint Vision'." *Marine Corps Gazette,* (March 1998) 53. Col. Clauer served as the division chief for Concepts Division, Joint Warfighting Center. His division coordinated and produced the *Concept for Future Joint Operations*.

[4] Office of the Chairman , Joint Chiefs of Staff, *Joint Vision 2010*, Washington, D.C., Government Printing Office, March 1995, 1.

[5] Ibid., 1-2.

[6] "Operationalizing Joint Vision 2010." (Adapted from remarks by General Henry H. Shelton, Chairman of the Joint Chiefs of Staff, 10 February 1988.) *Airpower Journal*, Vol. XII, No. 3 (Fall 1998) 103.

[7] Dunlap, Charles J., Col. USAF. "Joint Vision 2010: A Red Team Assessment." *Joint Forces Quarterly*, (Autumn/Winter 1997-98) 48.

[8] Ibid., 48.

[9] Ibid., 49.

[10] Ibid., 48.

[11] Office of the Chairman , Joint Chiefs of Staff, *Joint Vision 2010*, Washington, D.C., Government Printing Office, March 1995, 4.

[12] Ibid., 17.

[13] Ibid., 19-20.

[14] Ibid., 19.

[15] "Pentagon Seeking to Put Flesh on Bones of Joint Vision 2010." *National Defense*, Vol. LXXXII, No. 529 (July/August 1997) 47.

[16] "Operationalizing Joint Vision 2010." (Adapted from remarks by General Henry H. Shelton, Chairman of the Joint Chiefs of Staff, 10 February 1988.) *Airpower Journal*, Vol. XII, No. 3 (Fall 1998) 104.

[17] Office of the Chairman , Joint Chiefs of Staff, *Joint Vision 2010*, Washington, D.C., Government Printing Office, March 1995, 19.

[18] Ibid., 20.

[19] Ibid., 20-21.

[20] Ibid., 21.

[21] Ibid., 21.

[22] Ibid., 21.

[23] Ibid., 22-23.

[24] Ibid., 24.

[25] Ibid., 25.

[26] "Marching Toward Joint Vision." Interview With General Joseph W. Ralston, USAF, Vice Chairman of the Joint Chiefs of Staff, *Armed Forces Journal International*, Vol. 135, No. 9 (April 1998) 30.

[27] Cushman, John H., LTG, U.S. Army (Ret). "Joint Vision 2010: Can It Happen?" *Proceedings*, Vol. 123, No. 1 (January 1997) 43.

[28] *Operational Maneuver From the Sea*, Washington, D.C., Headquarters, U.S. Marine Corps, January 1996, V-9.

[29] Strategic Studies Group -1998. "Framing OMFTS: An Evolution to a Revolution." *Marine Corps Gazette*, (January 1999) 72. The Strategic Studies Group, a small "think tank" of field grade Marine officers for the Commandant of the Marine Corps, believes the elements and equipment of *OMFTS* are evolutionary developments. Some time in the future, they believe the evolution of these concepts and advances in the equipment will make *OMFTS* a truly revolutionary concept.

[30] Wilson, Gary I., Col. USMCR, Yunker, Chris, Maj. USMC, and Spinney, Franklin C. "OMFTS: Innovation, Deep Maneuver, And Aviation." *Marine Corps Gazette*, (December 1997) 21.

[31] *Operational Maneuver From the Sea*, Washington, D.C., Headquarters, U.S. Marine Corps, January 1996, V-9-10.

[32] Ibid., V-15.

[33] Ibid., V-3.

[34] Ibid., V-3.

[35] Kaplan, Robert D. *To the Ends of the Earth.* (New York: Random House, Inc., 1996) 10. Kaplan's book describes conditions very similar to those General Krulak, 31st Commandant of the Marine Corps, uses to illustrate his idea of "chaos in the littorals." Kaplan's travels would seem to confirm the notion that there will be large areas of the world where disorder reigns, yet it will be almost impossible for the U.S. to ignore problems in these areas because of their potential impact on national or allied economic interests and stability.

[36] *Operational Maneuver From the Sea*, Washington, D.C., Headquarters, U.S. Marine Corps, January 1996, V-5-7.

[37] Krulak, Charles C., General USMC. "Operational Maneuver From the Sea." *Proceedings*, Vol. 123, No. 1 (January 1997) 27.

[38] *Operational Maneuver From the Sea*, Washington, D.C., Headquarters, U.S. Marine Corps, January 1996, V-7-8.

[39] Krulak, Charles C., General USMC. "Operational Maneuver From the Sea." *Proceedings*, Vol. 123, No. 1 (January 1997) 27.

[40] *Ship to Objective Maneuver*, Marine Corps Concept Paper, Quantico, Va., Marine Corps Combat Development Command, July 1997, II-4-5.

[41] Ibid., II-5-7.

[42] Ibid., II-15.

[43] Ibid., II-14.

[44] *The Marine Air Ground Task Force in Sustained Operations Ashore*, Marine Corps Concept Paper, Quantico, Va., Marine Corps Combat Development Command, date unknown, IV-3.

[45] Ibid., IV-4.

[46] Ibid., IV-9-10.

[47] Ibid., IV-11-12, 17.

[48] *Concept for Advanced Expeditionary Fire Support: The System After Next*, Washington, D.C., Department of the Navy, 1999, 2.

[49] Ibid., 5.

[50] Lance, Joseph M., LtCol., USMC. "OMFTS: Innovative Concept But Can We Support It With Fires?" SAMS, U.S. Army Command and General Staff College, Monograph 2d Term AY 96-97, 29, 31. This student concludes with his monograph that the Marine Corps can support *OMFTS* given the fire support systems currently in the inventory plus the additions in development for introduction in the near future.

[51] Ibid., 36-40.

[52] *Concept for Advanced Expeditionary Fire Support: The System After Next*, Washington, D.C., Department of the Navy, 1999, 5.

[53] *Seabased Logistics*, Marine Corps Concept Paper, Quantico, Va., Marine Corps Combat Development Command, May 1998, 3-4.

[54] Ibid., 4-5.

[55] Ibid., 2.

[56] Ibid., 2.

Van Riper, Paul K., LtGen. USMC(Ret). "More on Innovations and Jointness." *Marine Corps Gazette*, (March 1998) 57. The author is a highly esteemed retired general officer, known for his forward thinking and innovative approaches to problems. His criticism of elements of *JV 2010* is well thought out and backed up by facts, not merely an emotional argument from a member of one service. LtGen. Van Riper remains active in military affairs and has been involved in conferences for the U.S. Army dealing with transformation and the Army XXI.

[58] Black Hawk Down, p. 110-111. Bowden relates how the Somalis desired to negate the U.S. power of hit and run tactics by shooting down a helicopter to force the Army Rangers to stay and fight. They quickly learned that trying to hit a moving helicopter with a point detonation warhead was ineffective, so they modified the RPGs to become air burst weapons. Also learning quickly that trying to stand on a roof and shoot at helicopters brought rapid and deadly retribution from U.S. helicopters, they modified their tactics by digging holes in the street and covering them with bushes. The RPG gunner would hide in the hole until the helicopter was overhead and then pop out to take a quick shot at the tail rotor, a recognized weak point for the aircraft.

[59] Alvin Toffler and Heidi Toffler, *War and Anti-War*, (Boston: Little, Brown and Co., 1993) 89-90.

[60] MCDP 1, *Warfighting*, Washington, D.C., Headquarters, U.S. Marine Corps, 1997, 72.

[61] Ibid., 72.

[62] Wilson, Gary I., Col. USMCR, Yunker, Chris, Maj. USMC, and Spinney, Franklin C. "OMFTS: Innovation, Deep Maneuver, And Aviation." *Marine Corps Gazette*, (December 1997) 21-23. This article chronicles advances made through several Marine Corps experiments, the most successful being the employment of an LAV battalion with an aviation task force. This force was able to explore the operational maneuver element concept. *Deep Strike*, the exercise to test the LAV task force idea, showed that a three-hundred vehicle task force could be controlled and supplied via air means while conducting operations deep in a simulated enemy rear area.

[63] MCDP 1, *Warfighting*, Washington, D.C., Headquarters, U.S. Marine Corps, 1997, 40-41.

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